**Course: \_Math 8\_\_\_\_\_\_\_\_ CCSS Standard Number(s): \_\_\_8.ee.2\_\_\_\_\_\_\_\_\_\_\_ Day: \_\_\_\_\_\_\_\_**

**Unit # and Title: \_\_\_Unit 1 Expressions and the number systems\_\_\_\_\_\_\_\_\_ Block(s)/Period(s): 1 2 3 4 5 6**

|  |  |  |  |
| --- | --- | --- | --- |
| **Unit Essential Question(s):** | **How do you apply the inverse operation to a square and cube? How do you inversely solve for the square and cube root?** | | |
| **Learning Target(s)**  **“I can statements”** | **Recall my perfect squares**  **Recognize taking the a square root as the inverse of squaring a number**  **Evaluate the square of root of a perfect square** | | |
| **Essential Vocabulary** | **Perfect Square, square root, squaring and inverse** | | |
| **Resources and Materials** | **Teacher** | | **Student** |
| **Holt 3-5**  **Destination: investigating squares and square roots** | | **Construction paper**  **Ruler**  **Crayons** |
| **8 Mathematical Practices:** | | | |
| 1. Make sense of problems and persevere in solving them.  2. Reason abstractly and quantitatively.  3. Construct viable arguments and critique the reasoning of others.  4. Model with mathematics. | | 5. Use appropriate tools strategically.  6. Attend to precision.  7. Look for and make use of structure.  8. Look for and express regularity in repeated reasoning. | |
| **Activating Strategy**  **(Opening Activity)** | **Students will be asked to name the properties of a square. Each student will be asked to create and decorate a square of various areas (4 – 900) from construction paper ( ec students will use graph paper).**  **The students will be asked to name the properties of their square including the actual dimensions.**  **Question: What makes your square perfect?** | | |
| **Cognitive Teaching Strategies**  **Me/We/Few/You**  **(TIP-Teacher input**  **SAP-Student actively participates**  **GP – Guided Practice**  **IP-Independent Practice)** | **Me: Define perfect square.**  **Ask students to look at their square. What operation was used to calculate the area? How can this notation (10 x 10) be expressed differently? What is it called? How does it work? What operation is the inverse of square? What would using the inverse of your square give you?**  **We: will solve question #35 on page 114 and test prep question #52 on page 115 of Holt.**  **Few: in pairs complete page 15 in On Core**  **You: Journal – how many perfect squares can you remember from this lesson. Mix and match teacher created handout/power point slide.** | | |
| **Summarizing Strategy**  **(Closing Activity)** | **Students will hang their squares on a clothes line in order of their area, then one by one each student will be ask to move a square from the area notation to the square root notation and explain why.** | | |
| **Assessment/Homework** | **Holt: Problem Solving Exponents and Roots chapter 3 section 5** | | |
| **Extending/Refining** | **Holt: Challenge Exponents and Roots chapter 3 section 5** | | |

**Course: \_Math 8\_\_\_\_\_\_\_\_ CCSS Standard Number(s): \_\_\_8.ee.2\_\_\_\_\_\_\_\_\_\_\_ Day: \_\_\_\_\_\_\_\_**

**Unit # and Title: \_\_\_Unit 1 Expressions and the number systems\_\_\_\_\_\_\_\_\_ Block(s)/Period(s): 1 2 3 4 5 6**

|  |  |  |  |
| --- | --- | --- | --- |
| **Unit Essential Question(s):** | **How do you apply the inverse operation to a square and cube? How do you inversely solve for the square and cube root?** | | |
| **Learning Target(s)**  **“I can statements”** | **Recognize taking the cubed root of a number is the inverse of cubing a number.**  **Evaluate the cube root of a perfect cube.** | | |
| **Essential Vocabulary** | **Cube, cube root, inverse and perfect cube** | | |
| **Resources and Materials** | **Teacher** | | **Student** |
| **Paper, snap cubes, blocks**  **On Core teacher edition** | | **On Core** |
| **8 Mathematical Practices:** | | | |
| 1. Make sense of problems and persevere in solving them.  2. Reason abstractly and quantitatively.  3. Construct viable arguments and critique the reasoning of others.  4. Model with mathematics. | | 5. Use appropriate tools strategically.  6. Attend to precision.  7. Look for and make use of structure.  8. Look for and express regularity in repeated reasoning. | |
| **Activating Strategy**  **(Opening Activity)** | **Review homework, to reestablish the perfect square properties.**  **Students will be asked to create a cube with snap cubes or blocks with 8 or more units. They will be asked to find the volume of the cube they created.** | | |
| **Cognitive Teaching Strategies**  **Me/We/Few/You**  **(TIP-Teacher input**  **SAP-Student actively participates**  **GP – Guided Practice**  **IP-Independent Practice)** | **Me: What is the volume formula? What operation is used to find volume? How can that formula be represented differently?**  **Keeping the previous activity with perfect squares in mind. What would the inverse of your cube look like?**  **We: will review volume and area word problems that solve for length. Then complete Page 17 on Core together**  **Few: In pairs complete page 16 On Core**  **You: On Core page 18 questions 1-12** | | |
| **Summarizing Strategy**  **(Closing Activity)** | **Students will be asked: Looking at the perfect square clothes line are they any areas that can be cubed? If yes justify. If no justify.** | | |
| **Assessment/Homework** | **Complete page 18 in On Core questions 13-23** | | |
| **Extending/Refining** | **Holt: Hands on Lab Chapter 3 page 120-121** | | |

**Course: \_Math 8\_\_\_\_\_\_\_\_ CCSS Standard Number(s): \_\_\_8.ee.2\_\_\_\_\_\_\_\_\_\_\_ Day: \_\_\_\_\_\_\_\_**

**Unit # and Title: \_\_\_Unit 1 Expressions and the number systems\_\_\_\_\_\_\_\_\_ Block(s)/Period(s): 1 2 3 4 5 6**

|  |  |  |  |
| --- | --- | --- | --- |
| **Unit Essential Question(s):** |  | | |
| **Learning Target(s)**  **“I can statements”** | **Solve equations using square roots and cube roots** | | |
| **Essential Vocabulary** | **Perfect Square, square root, squaring, cube, cubed root and inverse** | | |
| **Resources and Materials** | **Teacher** | | **Student** |
| **Holt 3-5** | | **Paper/ index cards** |
| **8 Mathematical Practices:** | | | |
| 1. Make sense of problems and persevere in solving them.  2. Reason abstractly and quantitatively.  3. Construct viable arguments and critique the reasoning of others.  4. Model with mathematics. | | 5. Use appropriate tools strategically.  6. Attend to precision.  7. Look for and make use of structure.  8. Look for and express regularity in repeated reasoning. | |
| **Activating Strategy**  **(Opening Activity)** | Holt application video  <http://my.hrw.com/math06_07/nsmedia/lesson_videos/msm3/player.html?contentSrc=7306/7306.xml>  **Students will be asked to create their own word problem that ask them find the square root of a scenario.**  **How would that scenario be different when applying it to a cube?** | | |
| **Cognitive Teaching Strategies**  **Me/We/Few/You**  **(TIP-Teacher input**  **SAP-Student actively participates**  **GP – Guided Practice**  **IP-Independent Practice)** | **Me: teacher created power point presentation**  **We: Glencoe: Complete Math Connection Study Guide and Intervention Math 8 page 41 questions 19-23**  **Few: Page 17 On Core workbook copy definitions and complete a-d**  **You: Complete On Core workbook page 18** | | |
| **Summarizing Strategy**  **(Closing Activity)** | **Create a mix and match, exchange with the group in front of yours solve and hand in** | | |
| **Assessment/Homework** | **Create a word problem on an index card with the answer on the back for review purposes.** | | |
| **Extending/Refining** | **Teacher created handout** | | |

**Course: \_Math 8\_\_\_\_\_\_\_\_ CCSS Standard Number(s): \_\_\_8.ee.2\_\_\_\_\_\_\_\_\_\_\_ Day: \_\_\_\_\_\_\_\_**

**Unit # and Title: \_\_\_Unit 1 Expressions and the number systems\_\_\_\_\_\_\_\_\_ Block(s)/Period(s): 1 2 3 4 5 6**

|  |  |  |  |
| --- | --- | --- | --- |
| **Unit Essential Question(s):** | **Where would you place the roots of non-perfect numbers on a number line?**  **Exercises** | | |
| **Learning Target(s)**  **“I can statements”** | **Justify that the square root of a non-perfect square will be irrational**  **Recognize that the square root of two is irrational.** | | |
| **Essential Vocabulary** | **Square root, square, and irrational numbers** | | |
| **Resources and Materials** | **Teacher** | | **Student** |
| **Index Cards**  **Holt online**  **Pizzazz Book D page 72** | | **Math notebook and pencil** |
| **8 Mathematical Practices:** | | | |
| 1. Make sense of problems and persevere in solving them.  2. Reason abstractly and quantitatively.  3. Construct viable arguments and critique the reasoning of others.  4. Model with mathematics. | | 5. Use appropriate tools strategically.  6. Attend to precision.  7. Look for and make use of structure.  8. Look for and express regularity in repeated reasoning. | |
| **Activating Strategy**  **(Opening Activity)** | **Review homework.**  **The class will create a number line based on perfect squares (created previously), then asked what relationship do the perfect squares they created (picture) and its location on the number line have in common.**  **Question: What happens if a number that you are finding the square root of doesn’t match the area of our perfect squares? Where would those numbers be located on the number line and why?** | | |
| **Cognitive Teaching Strategies**  **Me/We/Few/You**  **(TIP-Teacher input**  **SAP-Student actively participates**  **GP – Guided Practice**  **IP-Independent Practice)** | **Me: Ask students to define irrational numbers in their own words.**  **We: GEOMETRY** If the area of a square is 29 square inches, estimate the length of each side of the square to the nearest whole number.  **ALGEBRA** Estimate the solution of *c*2 = 40 to the nearest integer.  **Few: In pairs students will complete the alternate opener chapter 3 lesson 6 holt course 3**  **You: Complete Glencoe Math Triumphs page A116 Lesson 6-3** | | |
| **Summarizing Strategy**  **(Closing Activity)** | **Human Number Line: Each pair will be given one perfect square and one irrational number on an index card. The students with the perfect squares will solve and stand in order at the front of the class, the students with the irrational numbers will be asked one by one to join the established number line and explain their chosen location.** | | |
| **Assessment/Homework** | **Middle School Math Pizzazz Book D page 72** | | |
| **Extending/Refining** | **Holt Review of Mastery chapter 3 lesson 6** | | |